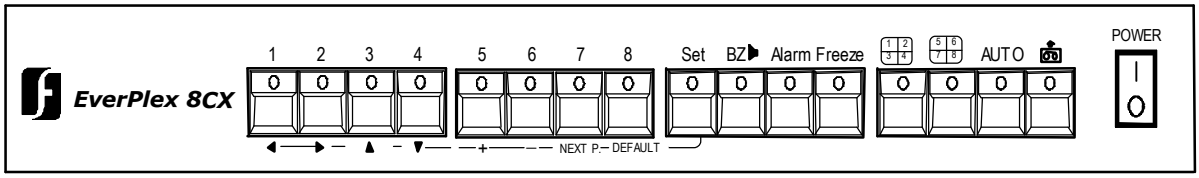
EverPlex 8CX

USER'S MANUAL



Eight Channel Color Multiplexer

High Resolution, Broadcast Quality

Auto Sequential Switcher

Near Real Time Playback

RS232 Remote Control

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Notice

This manual is presented to the users of EverPlex 8CX by EverFocus Electronics Corp. With years of engineering researches, EverFocus has spared no effort to provide the high quality products to the worldwide users. For the policy of continual product improvement, EverFocus reserves the right to make changes to the product specifications and documentation without notice. All the components of the products, including accessories, components, and outlook, are based on the agreements if each deals to satisfy all kinds of users. Meanwhile, please be advised that every step of operation must follow the instruction of this manual to keep EverPlex 8CX working under the best condition. Please notice that EverFocus will not be charged any claims or renewing cases resulted from inappropriate operation.

Safety Warning

1. To prevent fire or shock hazard, do not expose this equipment to the environment of high humidity and dust. So, do not use it in an unprotected outdoor installation or any area classified as a wet area.

2. Installation environment: The temperature should be kept between $0^{o}C$ ~ $+50^{o}C$

3. For safety sake, do not disseminate the unit or put it on a unstable base.

4. Ventilation: Openings in the enclosure are provided for ventilation and to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. This unit should not be placed in a built-in installation unless proper ventilation is provided.

5. Cleanse: Unplug the unit from the outlet before cleansing. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth to clean it.

6. Overload: Do not overload outlets and extension cords as this may result in a fire or electric shock.

7. Power-cord Protection: Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

8. Object and Liquid Entry: Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

9. Service: Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage of other hazards. Refer all servicing to qualified service personnel.

Introduction

EverPlex 8CX, a real time color Multiplexer and 8 channel auto switcher, is the best choice for multiple monitoring and recording. 8 cameras' output are digital processed and stored as consecutive fields on video tape, and on playback, any of camera can be displayed as a full screen, full resolution moving image or displayed as a group in Quad.

The superior video quality is achieved by adopting the advanced multi-media technology. The picture display is sharp and clear because EverPlex 8CX is featured with CCIR601 full resolution and 16 million colors.

Main Features:

- Connect up to 8 cameras with loop through.
- High Resolution 720 x 576 (PAL), 720 x 480 (NTSC).
- Superior quality display and 16 million true colors.
- Video loss detection.
- Independent brightness, contrast, color and tint adjustments for every channel.
- Auto sequential switching function and adjustable dwelling time (1-99 seconds).
- Programmable auto switcher output.
- Built-in timer and title generator.
- Alarm input with built-in buzzer.
- Time-Lapse recording control.
- Playback in Quad or Full screen image.
- RS232 Remote Control.
- Rack Mount 1U size.
- User-friendly front panel design.

Specification

Video input:	8 cameras input with looping 1 VCR playback input
Video output:	2 Video outputs (1V p-p/75 ohm): Monitor Output Recording output
Title:	6 characters title generator for each camera
Timer:	Built-in real time clock
Alarm input:	8 alarm inputs and 1 alarm reset input
Alarm output:	2 Alarm Out (1 Normally Open, 1 Normally Closed relay output)
Video loss detection:	Yes
Security Lockout:	Yes
Time-Lapse record:	Auto detect time-lapse recording mode
Remote control:	RS232 Remote Control
Dimension:	438 x 262 x 44 mm
Power source:	AC 90~260V, 50/60Hz
Power consumption:	17W max.

Chapter I Functional Setting

1. Set

SET

Press the SET key to set time/date, title on/off, picture, camera titles, switching sequence, switching dwell time, alarm sensor type, alarm hold time, and display the alarm/video loss records.

There are 12 pages in the setting mode :

Page 1:	Date, time setting and on screen display on/off setting
Page 2:	Alarm records display
Page 3:	Set auto sequential switching on/off and switching dwell time
Page 4:	Set alarm sensor type, alarm hold time, and buzzer on/off
Page 5~12:	Set camera title, brightness, contrast, color, and tint for camera 1~8

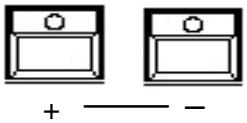
Keys for setting are as below:

NEXT P.

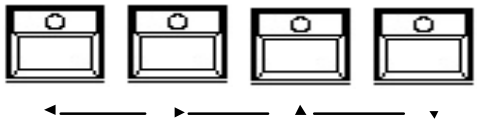
Press Next P. to select the following pages for setting.

DEFAULT

Press Default key to reset the setting.



Press the +/- keys to set the value.



Press the cursor key to select the item for setting.

2. Date, time, and on screen display setting (Page 1)

```
DATE:  1997-01-01
TIME:   01:01:01

RECORD OUT  DATE:   ON
RECORD OUT  TIME:   ON
RECORD OUT  TITLE:  ON

LIVE SCREEN DATE:   ON
LIVE SCREEN TIME:   ON
LIVE SCREEN TITLE:  ON

TIME LAPSE RECORD: ON
```

DATE - data format is CC-YY-MM-DD, where

CC	:	Century code from 19 to 20
YY	:	Year data from 00 to 99
MM	:	Month data from 01 to 12
DD	:	Day data from 01 to 31

TIME - data format is HH-MM-SS, where

HH	:	Hour data from 00 to 23
MM	:	Minute data from 00 to 59
SS	:	Second data from 00 to 59

On Screen Display Setting

RECORD OUT DATE, TIME, TITLE : ON/OFF

'ON' : The VCR play back will show date, time, and title.

'OFF': The VCR playback will not show date, time, and title.

LIVE SCREEN DATE, TIME, TITLE : ON/OFF

'ON' :Date, time, and title will show on the monitor display.

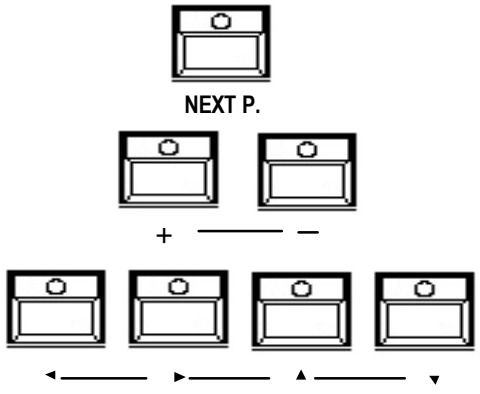
'OFF' :Date, time, and title will not show on the monitor display.

TIME-LAPSE RECORD: ON/OFF

'ON': The Time-Lapse recording could work by detecting the step signal input from VCR. If there is no step signal input within 12 seconds, EverPlex 8CX will go back to normal recording.

'OFF':The Time-Lapse recording function is disabled.

Keys for setting are as below:

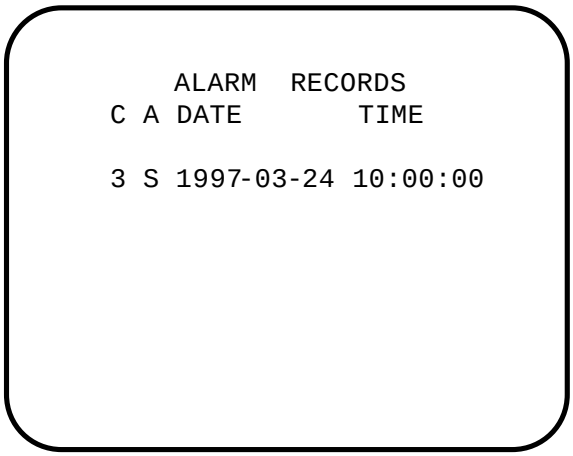


Press Next P. to select next page for alarm records display.

Press the +/- keys to correct date, time, and to set on/off for date, time, title of quad screen or full screen display.

Press the cursor key to select the items on the same page for setting.

3. Alarm records display (Page 2)



The Alarm Record format is : (C A DATE TIME)

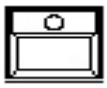
C : the channel number from 1 to 8 which receive the alarm inputs.

A : Indicate where the alarm happened: '**S** ' - alarm from sensor input
'**V**' - alarm from video loss detection

DATE, TIME - Indicate the date and time when the alarm happens

The memory of the Alarm Records Display contains up to the latest 5 records.

Keys for setting are as below:



Press Next P. key to the setting page of sequential switch menu.

To clear the alarm records, please press Default key. It will clear all the records at one time.

4. Sequential switch menu (Page 3)

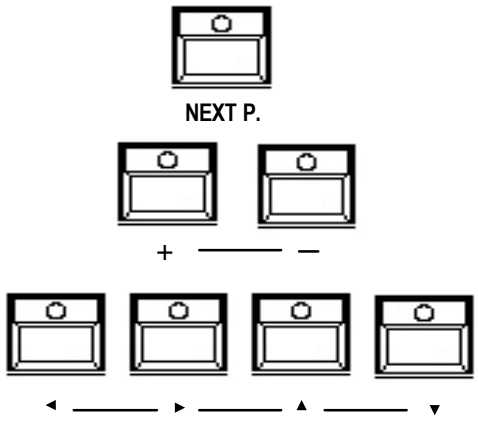
```
SEQUENTIAL  SWITCH  MENU

CH1:    ON      CH5:     ON
CH2:    ON      CH6:     ON
CH3:    ON      CH7:     ON
CH4:    ON      CH8:     ON

SWITCH TIME  :   03 SEC
```

CH1 - CH8 : ON/OFF
'ON' : The camera is set in auto sequential switching mode.
'OFF' : The camera is not set in auto sequential switching mode.

To cancel the screen display auto sequence, you can either Set CH1 - CH8 'OFF' at the same time or press any one of the full screen camera select key.

SWITCH TIME: The auto sequence dwell time for the camera's full screen display can be set from 0-99 seconds. The required switch time must be set before the sequential switch is used.

Keys for setting are as below:



Press Next P. to the alarm setting menu.

Press the +/- keys to set switch time and to choose on/off for the camera's sequential switch mode.

Press the cursor key to select the item on the same page for setting.

5. Alarm setting menu (Page 4)

```
        ALARM SETTING MENU

CH SENSOR        CH
SENSOR
 1 N.O.          5.N.O.
 2 N.O.          6.N.O.
 3 N.O.          7.N.O.
 4 N.O.          8.N.O.

ALARM RESET IN : N.O.
BUZZER         : ON
KEY LOCK       : OFF
ALARM HOLD TIME: 05 SEC
```

There are two types of alarm sensor inputs for each camera, one is normally open and the other is normally closed.

CH1 - CH8 : N.O./ N.C.

'N.O.' : The normal situation of sensor inputs is set normally open. If the inputs are closed, the system will start the alarm.

'N.C.' : The normal situation of sensor inputs is set normally close. If the inputs are opened, the system will start the alarm. Closed means to short the alarm signal line to the ground.

ALARM RESET IN : To set alarm reset input type as 'N.O.' or 'N.C.'

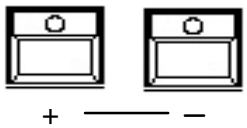
BUZZER : ON/OFF, ON: It will buzz when alarm happens.
OFF : It will not buzz when alarm happens.

KEY LOCK : ON/OFF, ON: All keys except SET key are locked. KEY LOCK stays ON until you turn it off by pressing the SET key again.
OFF: All keys can be operated normally.

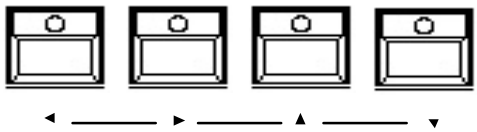
ALARM HOLD TIME : Indicate the time duration (0~99seconds) for alarm buzzer if the buzzer is on, the alarm channel screen display hold time (see 2.2.1) and the alarm signal output when any alarm comes.

Keys for setting are as below:

Press Next P. to title and video menu.

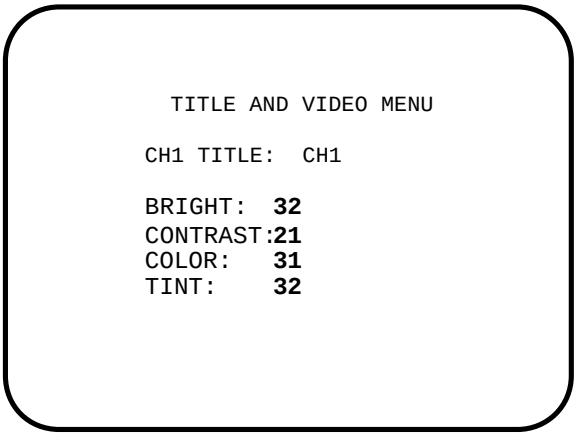


Press the +/- keys to set the value.



Press the cursor key to select the items on the same page for setting.

6. Title and video menu (Page 5-12)



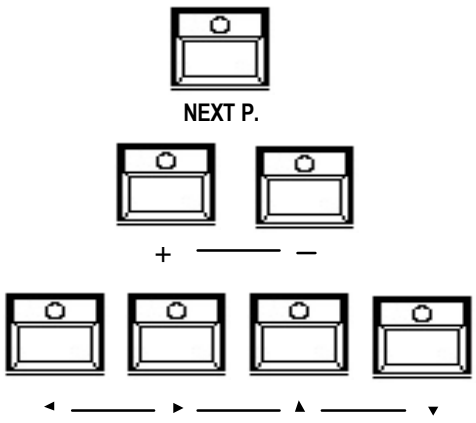
The characters for setting the title of cameras are:

“Space”, “.”, “-”, “:”, “0~9”, “A~Z”, “a~z”

The numbers for setting the value of brightness, contrast,

color and tint are: 00~63

Keys for setting are as below:

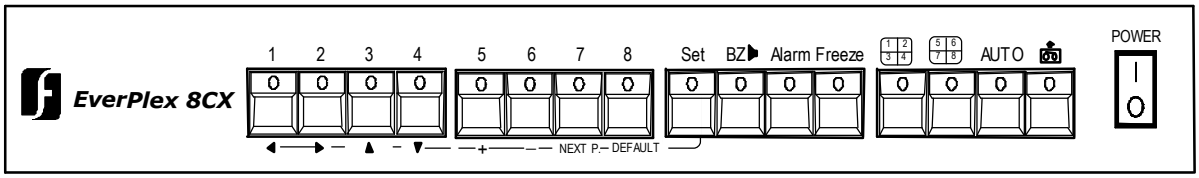


Press Next P. to the next page of title and video menu and after channel eight, it will return to the first setting page.

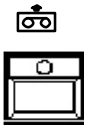
Press the +/- keys to set the value.

Press the cursor key to select the items on the same page for setting.

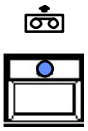
Chapter II Front Panel Keypads



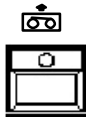
1. VCR play back



Press play back key, will enter the play back mode and display the recorded images in quad format, press camera select or quad select key to display individual camera full screen or all cameras' recorded images in a quad.



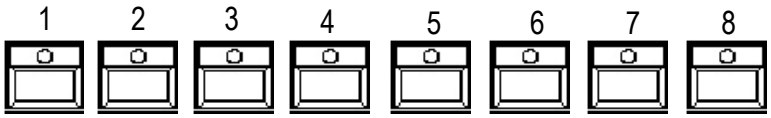
LED ON: The system is displaying the recorded video in VCR.



LED OFF: The system is not displaying the recorded video in VCR.

Press play back key again to exit the play back mode.

1.1 Camera select



In VCR playback mode, please press any camera selecting key (1,..,8), and the picture of the corresponding camera will fill the whole screen of the monitor display.

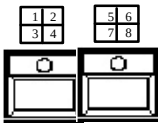
1

LED ON: The picture of the corresponding camera fill the whole screen on monitor display.

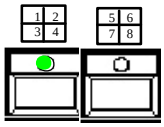
1

LED OFF: When all the LEDs of corresponding cameras are off, there is a quad image on the monitor display.

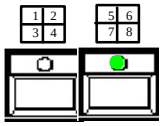
1.2 Quad select



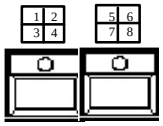
In playback mode, please press the quad select key, the recorded 8 camera images will be displayed as a group in a quad image.



Left LED is ON : Current quad picture is from camera: 1,2,3,4.



Right LED is ON : Current quad picture is from camera: 5,6,7,8.



No LED is ON : Current picture is full screen .

1.3 Freeze

Freeze

In playback mode, please press the Freeze key to freeze the playback video image, press the Freeze key again, the recorded video will continue playback normally.

Freeze

LED ON: The picture of the playback image is frozen.

Freeze

LED OFF: The picture of the playback image is not frozen.

Please be advised that the two functions mentioned above, Quad Select, and Freeze only can be used in VCR play back mode.

2. Auto sequential switching

SEQ

Press SEQ key it will enter the auto sequential switching mode, the switching sequence is programmed in SET function (see page 8, 4.), it will sequentially display camera's image with full screen on the main monitor according to the programmed switching sequence. Press the SEQ key again, it will exit the auto sequential mode and stay at the last screen display. Or press the camera selecting key (1,…,8), it will also exit the auto sequential mode and stay at the full screen of the channel you select.

SEQ

LED ON: Auto sequential switching mode is on.

SEQ

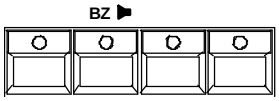
LED OFF: Auto sequential switching mode is off.

1

LED ON: Press any one of the camera selecting key, the picture of the corresponding camera fill the whole screen on monitor display.

Please notice that the function of Camera Select can be used in VCR play back mode and Auto sequential switching.

3. Buzzer

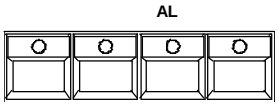


The Buzzer can be set to on or off in the page of alarm setting menu (see page 11, 6.). If the buzzer is on, it will be start when alarm happens. If the buzzer is off, it will be mute when alarm happens.

LED ON: It will buzz when alarm happens.

LED OFF: It will not buzz when alarm happens.

4. Alarm

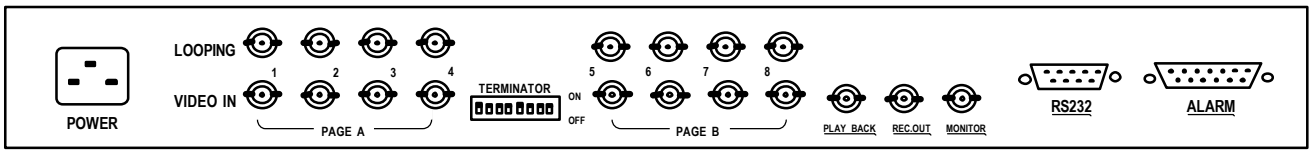


Press ALARM key will start the alarm systems at the same time. Then it will:
1. blink alarm message in the screen.
2. start the buzzer if the buzzer setting is on.

LED Flashing: The system is in alarming.

LED OFF: The system is not in alarming.

Chapter III Back Panel Connection



1. BNC Connectors

1.1 MONITOR

Connect this output port to the main monitor.

1.2 REC. OUT

Connect this output port to the VIDEO IN of VCR. The images of cameras are stored as consecutive fields in video tape.

1.3 PLAY BACK

Connect this input port to the VIDEO OUT of VCR.

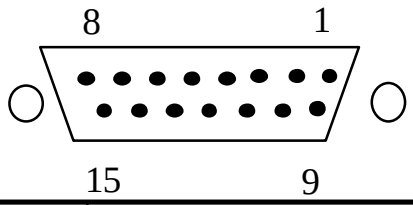
1.4 VIDEO IN

Connect camera video out to this connector by a 75 ohm coaxial cable.

1.5 LOOPING

Connect the other devices to these connectors. They are used to loop through the video of cameras to other devices.

2. Alarm Connectors (DB-15)

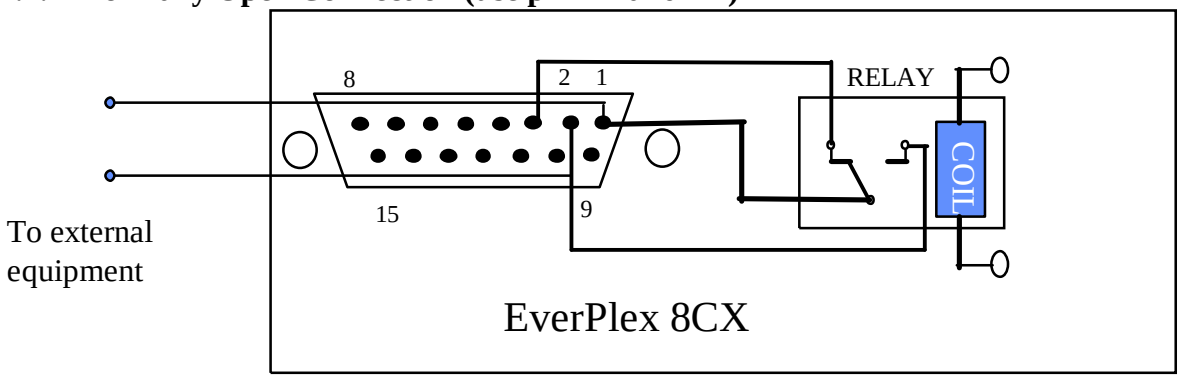


PIN #	NAME	PIN #	NAME
1	Relay Common contact	9	STEP signal in from VCR
2	Relay Normally Open contact	10	not connected
3	Relay Normally Closed contact	11	Alarm Reset
4	GROUND	12	ALARM IN 8
5	ALARM IN 4	13	ALARM IN 7
6	ALARM IN 3	14	ALARM IN 6
7	ALARM IN 2	15	ALARM IN 5
8	ALARM IN 1		

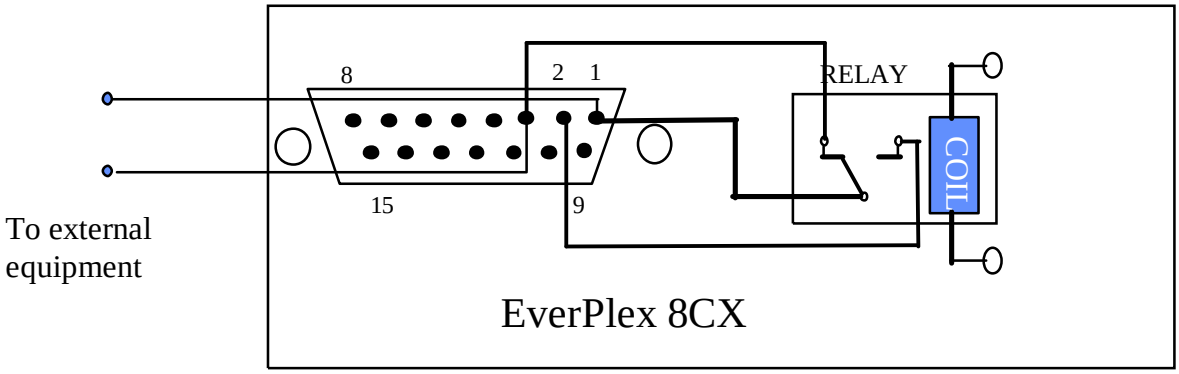
2.1 Alarm out

There are two ways to do the alarm relay connection:

2.1.1 Normally Open Connection (use pin # 1 and # 2)

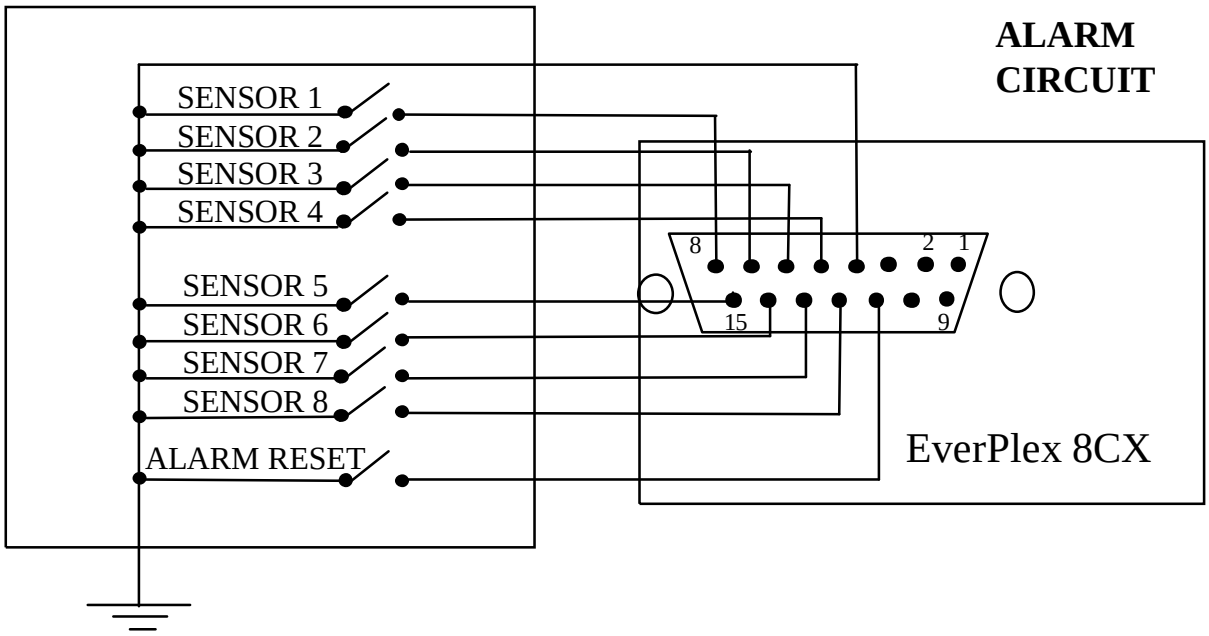


2.1.2 Normally Closed Connection (use pin # 1 and # 3)



2.2 Alarm in and Alarm reset

There are 8 alarm sensors for 8 channels and 1 alarm reset in, all these 9 alarm inputs can be set in Normally Open or Normally Close by users and the setting manual.



2.2.1 ALARM IN

There are eight alarm inputs for eight cameras. Please connect the alarm input in the same sequence as the cameras input BNC.

When any alarm signal comes, in the monitor display will do the following:

1. switch to the full screen display of the alarming channel.
2. blink the alarm message on the screen.
3. turn on the buzzer if the buzzer setting is on.

The **ALARM in** can be selected as normally open input or normally closed input:

Normally Open (N.O.) : If the alarm input is selected as Normally Open input, then the input is opened normally, and shorted to the ground means an alarm happens.

Normally Close (N.C.) : If the alarm input is selected as Normally Close input, then the input is shored to the ground normally, and opened input means an alarm happens.

2.2.2 Alarm reset

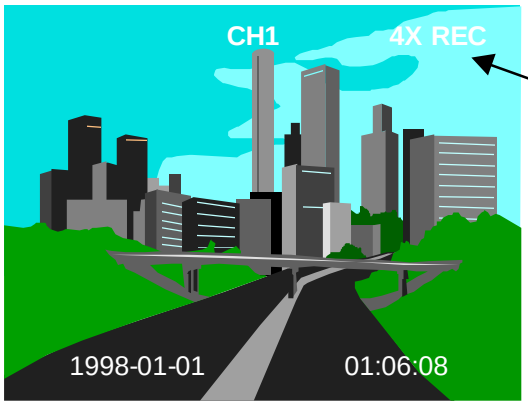
External alarm reset signal used to reset the alarm and turn the buzzer off. If it is selected as Normally Closed input, then the input is shorted to the ground normally, and opened when an alarm reset signal comes in. If it is selected as Normally Open input, then the input is opened normally, and shorted to the ground means an alarm reset signal comes in.

2.3 Step signal input from VCR

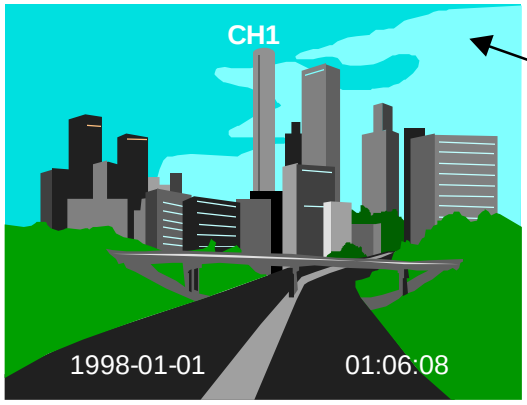
If the time-lapse recording is set 'ON' in the setting menu, the 8CX will detect the time-lapse recording mode of VCR by using a step signal cable connected to VCR.

The 8CX will do the following when time-lapse recording is on:

1. Keep the normal recording mode before the step signal is detected.
2. If the step signal is detected, the images of the cameras will be recorded according to the VCR step output.
3. Showing the time-lapse recording mode on the screen. For example, the screen will show " 4X REC" if we set VCR to 12H mode for a 3 hour tape.
4. The 8CX will return to the continuous recording mode if it can't detect any step signal from VCR for more than 12 seconds. The recording mode message will be cleared out automatically.



Recording mode message shows up when the time-lapse recording is 'ON' in the setting menu and the step signal is detected.



Keep continuous recording when there is no recording mode message.

3. RS232 Connection

EverPlex 8CX may be controlled by a computer or a terminal via the standard 9 pin D- SUB/RS232 connector which is connected to the alarm I/O by a cable with 15 pin and 9 pin connectors. EverPlex 8CX will send the alarm message to the host via RS232 when any alarm occurs.

3.1. The pin assignment of the 9 pin D-SUB connector

Everplex			HOST	
PIN #	NAME		PIN #	NAME
1	NOT CONNECTED		1	NOT CONNECTED
2	TXD	→	2	RXD
3	RXD	←	3	TXD
4	NOT CONNECTED		4	DTR
5	GROUND	—	5	GROUND
6	NOT CONNECTED		6	DSR
7	NOT CONNECTED		7	RTS
8	NOT CONNECTED		8	CTS
9	+5V		9	NOT CONNECTED

3.2 Transmission setting

The transmission setting in EverPlex 8CX is 9600 baud rate, 1 start bit, 1 stop bit and no parity.

3.3 Remote control protocol

A computer or a terminal can be used to control the EverPlex 8CX by sending two-character ASCII command through RS232 connector, these ASCII commands are started with 'K' or 'k'. There are 16 ASCII commands mapped to the 16 keypads in the front panel and 1 additional commands to reset the EverPlex 8CX to the quad display state. The ASCII commands are:

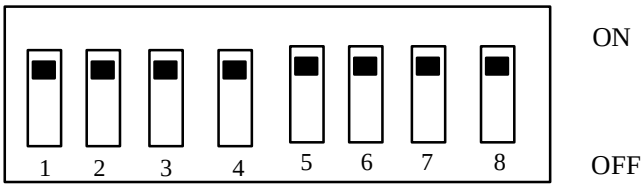
EverPlex 8CX Remote Control Command Table		
ASCII CODE	**FUNCTION**	**Keypad in front panel**
K01	Camera Select 1	1
K02	Camera Select 2	2
K03	Camera Select 3	3
K04	Camera Select 4	4
K05	Camera Select 5	5
K06	Camera Select 6	6
K07	Camera Select 7	7
K08	Camera Select 8	8
K09	SET	**SET**
K10	Buzzer	**BZ** ▶
K11	Alarm	**ALARM**
K12	Freeze	**FREEZE**
K13	Quad 1,2,3,4	1 2 3 4
K14	Quad 5,6,7,8	5 6 7 8
K15	Sequential Switching	**SEQ**
K16	VCR Play Back	
K00	Reset EverPlex 8CX to Quad display	none

3.4 Alarm message sent via RS232

EverPlex 8CX will send out alarm message through RS232 when any alarm occurs, the alarm message format are three ASCII characters followed carriage return and line feed, they are:

first character is the leading code , **'!'**
second character is the alarm type, **'S'** indicates a sensor alarm, **'V'** indicates a video loss
third character is the channel number having the alarm, **'1' ~ '8'**
fourth byte is the carriage return code, 0DH
fifth byte is the line feed code, 0AH

4. Terminator



Each camera should be terminated by 75 Ohms. This termination is normally provided be having all switches of 1-8 on. If cameras are looped through to other equipment which provides termination, then the switch sections of the corresponding inputs should be turned off.

Terminator	Camera Input	OFF	ON
1	1	Not Terminated	75 Ohm Termination
2	2	Not Terminated	75 Ohm Termination
3	3	Not Terminated	75 Ohm Termination
4	4	Not Terminated	75 Ohm Termination
5	5	Not Terminated	75 Ohm Termination
6	6	Not Terminated	75 Ohm Termination
7	7	Not Terminated	75 Ohm Termination
8	8	Not Terminated	75 Ohm Termination

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